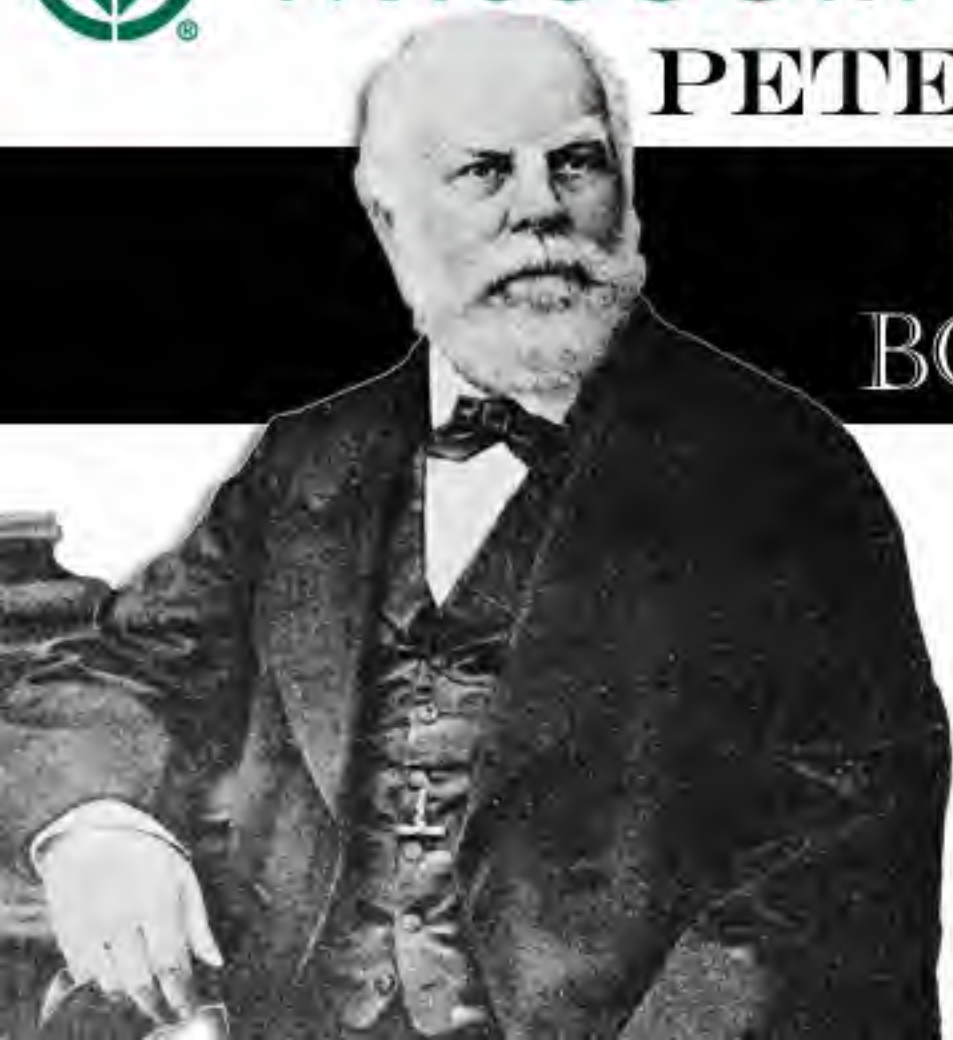


PETER H. RAVEN LIBRARY

GEORGE ENGELMANN
BOTANICAL NOTEBOOKS



Pagination Note:

Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

5 Feb

52

P. Sabiniana

235-9



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11199

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus Sabiniana
Californ

Nov 1862

Dr W. H. C. Jones



wings of pair
of seeds, side
upper side

usual form

Section
of wing



Section
of wing
x 4



lower side
towards their
scale

Different forms
of wing

outside or upper side
of seeds



lower side

upper side

towards the scale

Top of seed

inner edge of
seed rounded
outer one bluntly
carinate

wing cavity detached
for seed

Cone $8\frac{1}{2}$ inches long

scales $\frac{54}{55}$ arrangement



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11200

ALEX. LEITCH,
APOTHECARY & CHEMIST,
Cor. 4th and Olive Sts., St. Louis.

CHEMIST

A

ALL THE NEW REMEDIES

CONSTANTLY ON HAND

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

March 1865

P. Sabiniana

longest diameter of Pollen x415

Polander leg April 1864

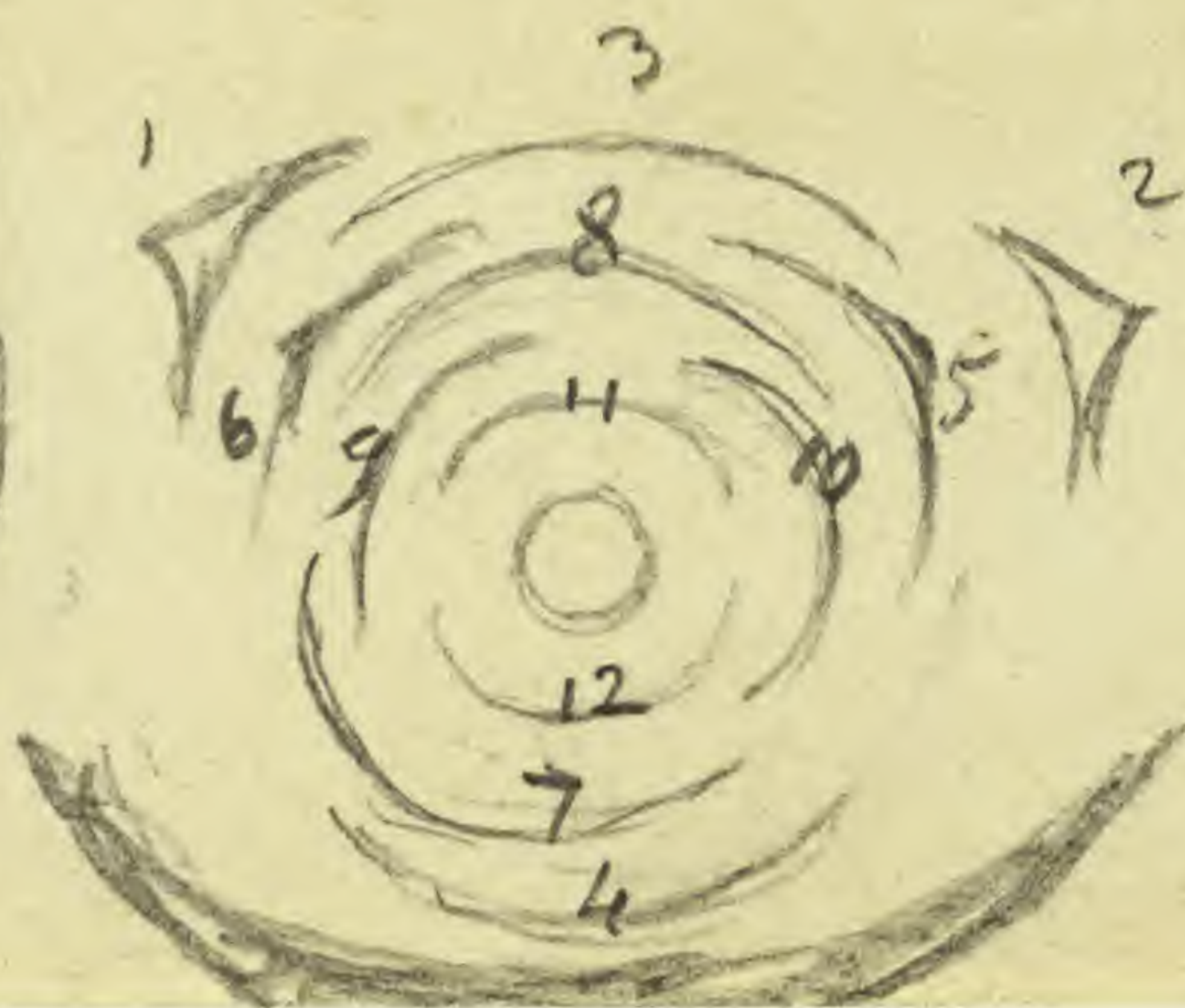
— = 0.040 - 0.046 Lin mostly 0.043 - 0.044

x4



anther x10

ovule low, very thin, membranous



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11201

LEITCH & CORLIES,
DRUGGISTS,

South-West Corner of Fifth and Market Streets,

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus subniana ?

23 April 1865

N. 563 Calif. State Survey



X4



$\frac{16.7-19}{4.15}$

Pollen = 0.040 - 0.046

Lin



10 involucre

Scales

position

holvery

exact



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11202

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved

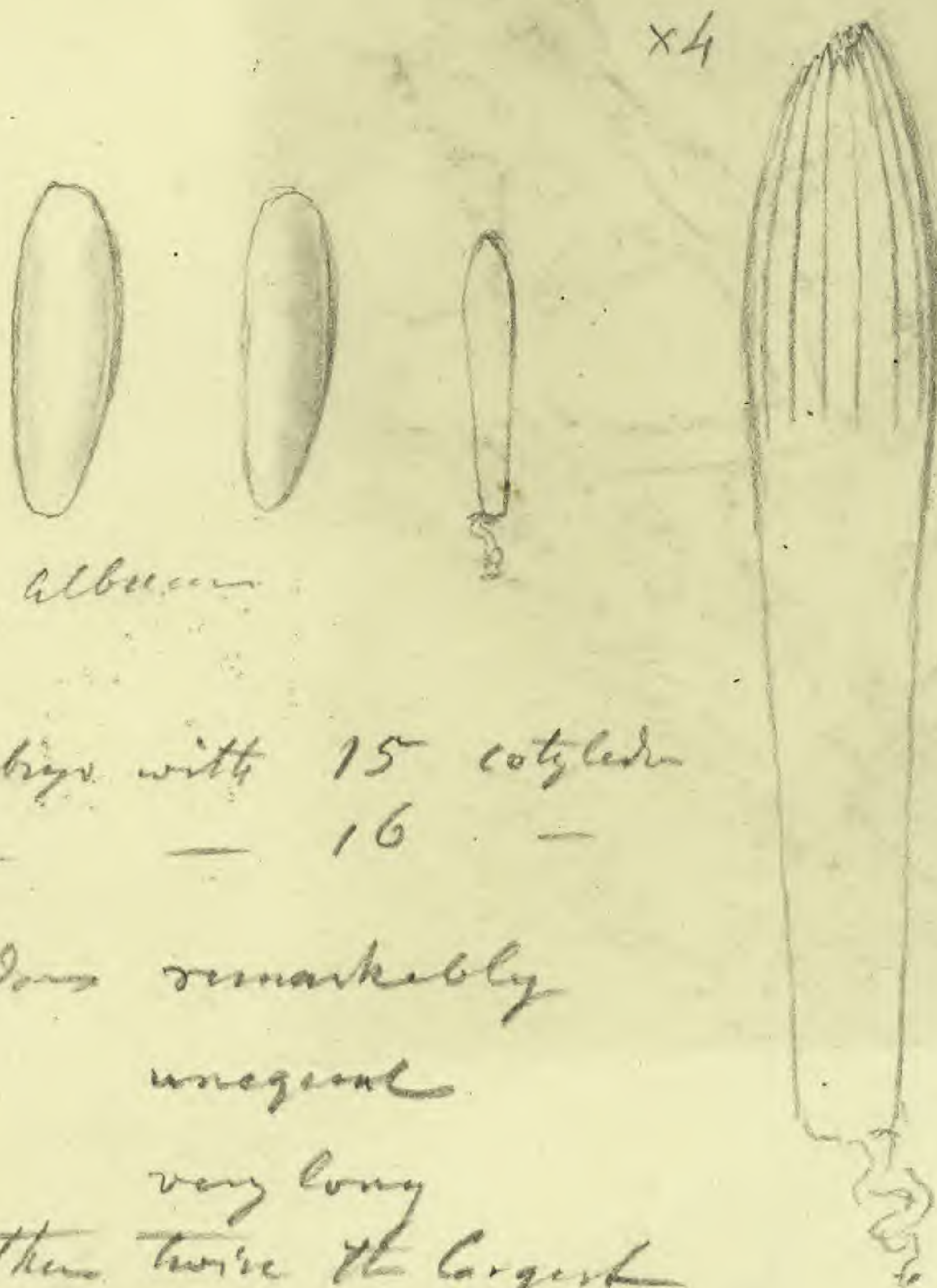


MISSOURI
BOTANICAL
GARDEN

Pinus Sabini

April 23. 1865

Dr. Willigen 1851



1 embryo with 15 cotyled.
1 — — 16 —

cotyledons remarkably
unequal

very long
longer than twice the largest
Diameter of embryo
more than $\frac{1}{3}$ the length of the embryo



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11203

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

[Faint pencil sketches of botanical specimens, including elongated, pointed structures, possibly seeds or fruits, arranged in a row. Faint handwritten notes are visible below the sketches.]



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pison Sabianiana
Calif

May 5 1878



hypodermis on edges, and
in bundles around
the leaf - , also within sheath
no hypodermis on ducts



x60



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11204

HENRY T. BOHLING

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,
ST. LOUIS, MO.

187

Date,

No.

R

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Geo. Engelmann, M. D.,

No. 3003 Locust Street.



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

7 tub

53

P. Coulteri

240-6



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11205

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved

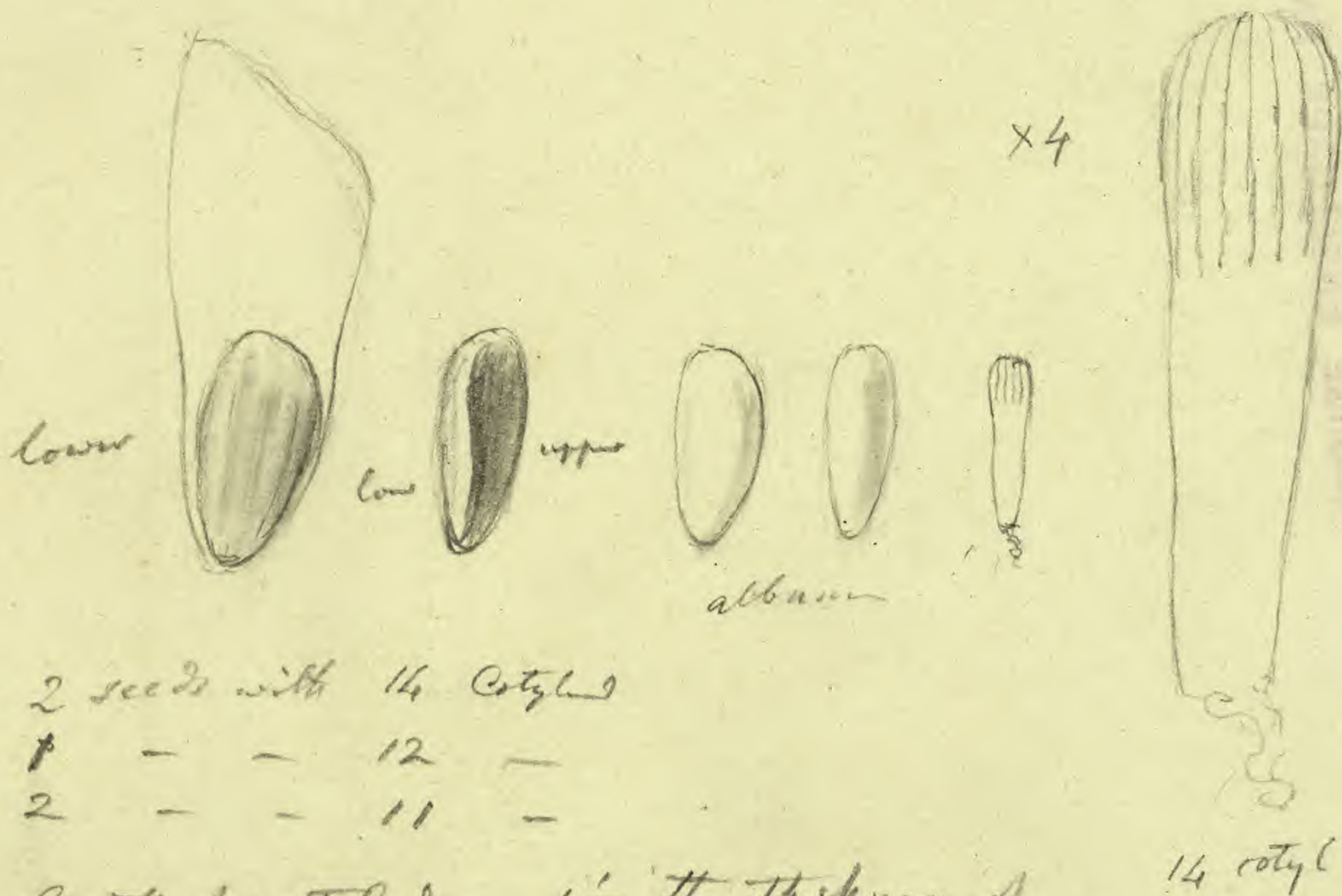


MISSOURI
BOTANICAL
GARDEN

Pinus Coulteri Don

April 23 1865

Bolanderi 1865-



2 seeds with 14 Cotyled

1 - - 12 -

2 - - 11 -

length of cotyledons $1\frac{1}{2}$ the thickness of
embryo

more than $\frac{1}{3}$ of length of embryo



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11206

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus Coulteri

April 1st 1871

form macrophylla

monticola, Solander

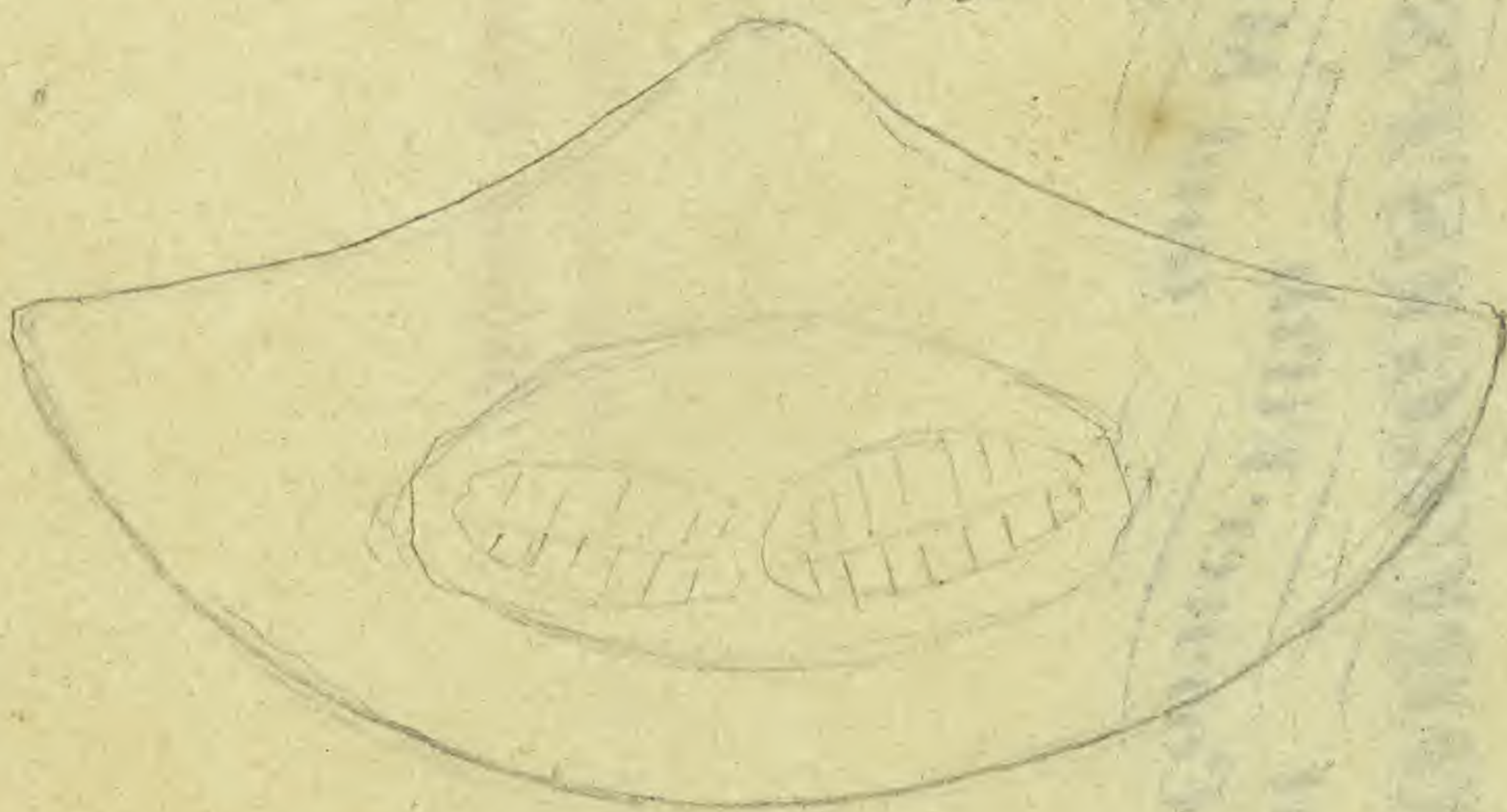
largest leaves 13" long and 1 line wide.

x 30

x 30

x 60

widest leaves
x 30



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11207

Leitch & Corlies

DRUGGISTS

South West
Corner Fifth
and Market
Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Picus Coulteri

April 2. 1871

monte Diablo, Bolander

few Pollen grains seen, adhering to involucre
belonging here?

$\frac{35}{415}$ and $\frac{40.5-42.5}{415}$



anther 18-20 lines
involucre 8 lines
long



Anther x10



8-10 involucral scales
2 outer ones half as large as
inner ones or larger,
upper outer rounded
lowest outer linear-oblong

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS
VOLUME 1
PAGES 1-100
1871-1872



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11208

Leitch & Corlies

DRUGGISTS

South West
Corner Fifth
and Market
Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus Coulteri

May 4 1878

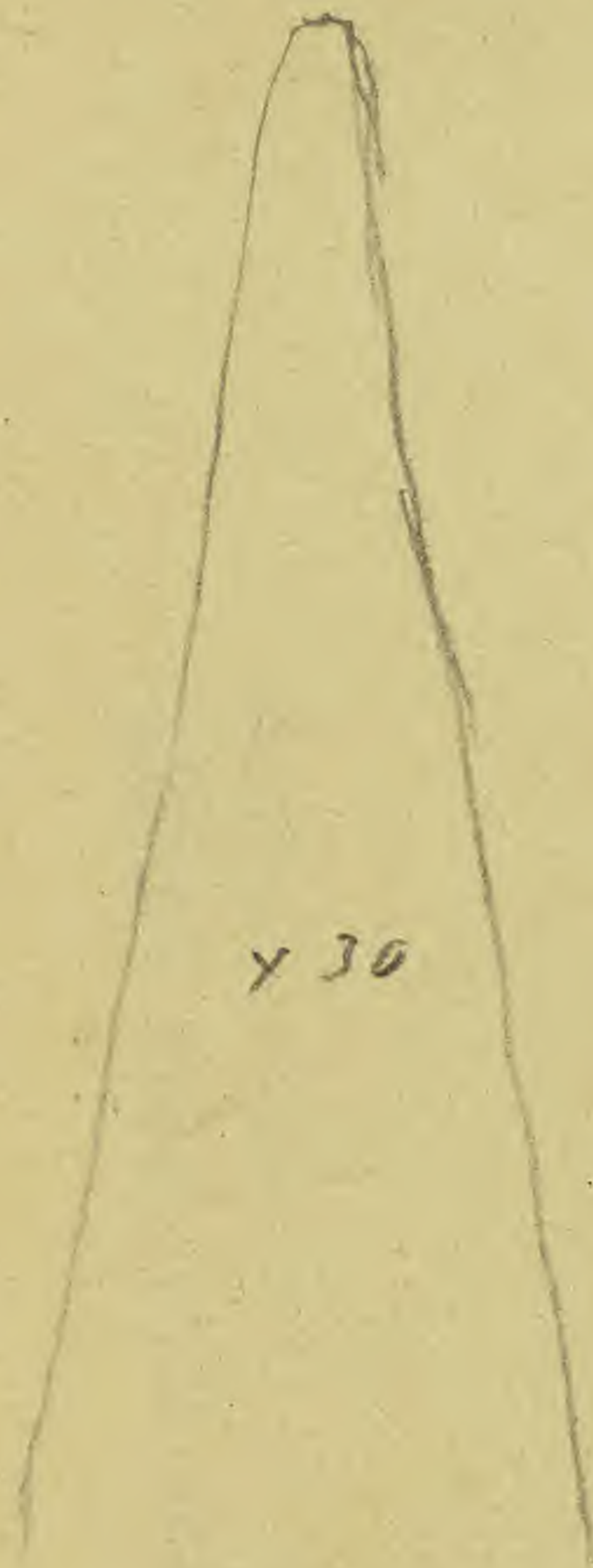
cult at Kew 1857

x 30



6-8 ducts, all summed
by hypoderm cells,
and then distinguished from
the native plant

x 30



x 60



0
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11209

HENRY T. BOHLING,

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,

ST. LOUIS, MO.

No. Date, 187

R

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Geo. Engelmann, M. D.,
No. 3003 Locust Street,



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

P. Coulteri

May 24 1878

Brewer No 136

x30



sometimes a few hypoderm cells on ducts
ducts 2, 3 or 4

hypoderm cells above and below wood bundles

x30



x60



large & stout Coulteri (from Moore)
has only 2 ducts
and more
pith & leaves



0
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11210

HENRY T. BOHLING,

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,
ST. LOUIS, MO.

No. Date, 187

R

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Geo. Engelmann, M. D.,
No. 3003 Locust Street,



0
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pia Coulteri

June 4 1879

Tally's Ranch, San Diego Co
D. Palmer 1875

x30



usually 4 parenchymatous ducts
sometimes more
surrounded by hypodermis, but
sometimes sparingly

x60



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

-11211

HENRY T. BOHLING,
APOTHECARY.

No. 2600 Eacleda Ave., S. W. Cor. Jefferson Ave.
ST. LOUIS, MO.

R.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

6 Feb

54

P. insignis

247-52



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11212

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



0

1

2

3

4

5

6

7

8

9

10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus insignis Bifolia

May 14 1878

x60

Guadalupe Island. D. Palmer No 90

leaves 1.9 - 2.0 mm wide

x 30



about 8 layers of bundles of hypodermis
above, 10 below - no other inside
of leaf (on ducts or within sheath)
ducts parenchymatous, lateral; regular

r36



section of young half
grown leaf with indistinct
lateral parenchymatous
ducts and occasional
one or two close to sheath!



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11213

GEO. B. FRESE & CO'S,
No. 3005 Olive Street,
Near Garrison Av. ST. LOUIS.

Prescription Store,

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Prescribed by

DR. GEO. ENGELMANN,

N. W. Cor. Garrison Ave. & Locust St.,



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pin. insipida

May 14 1878

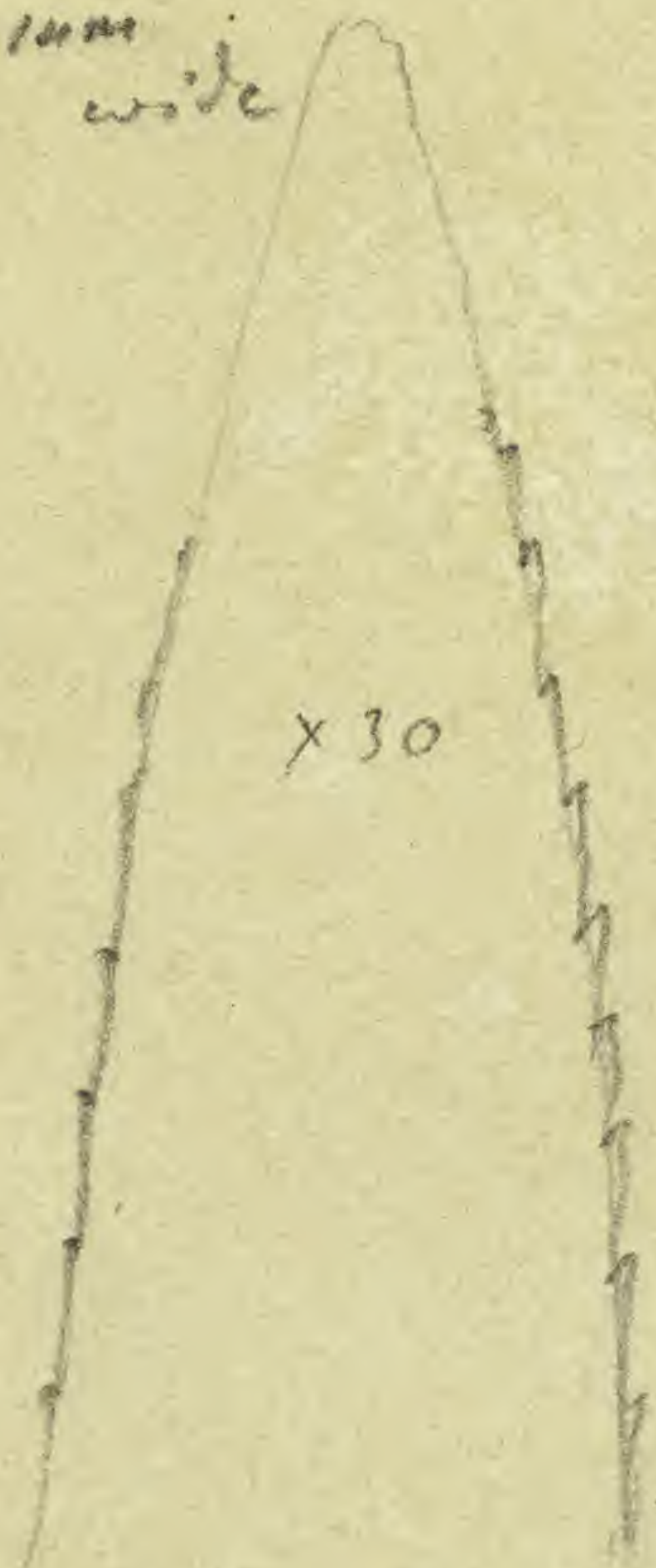
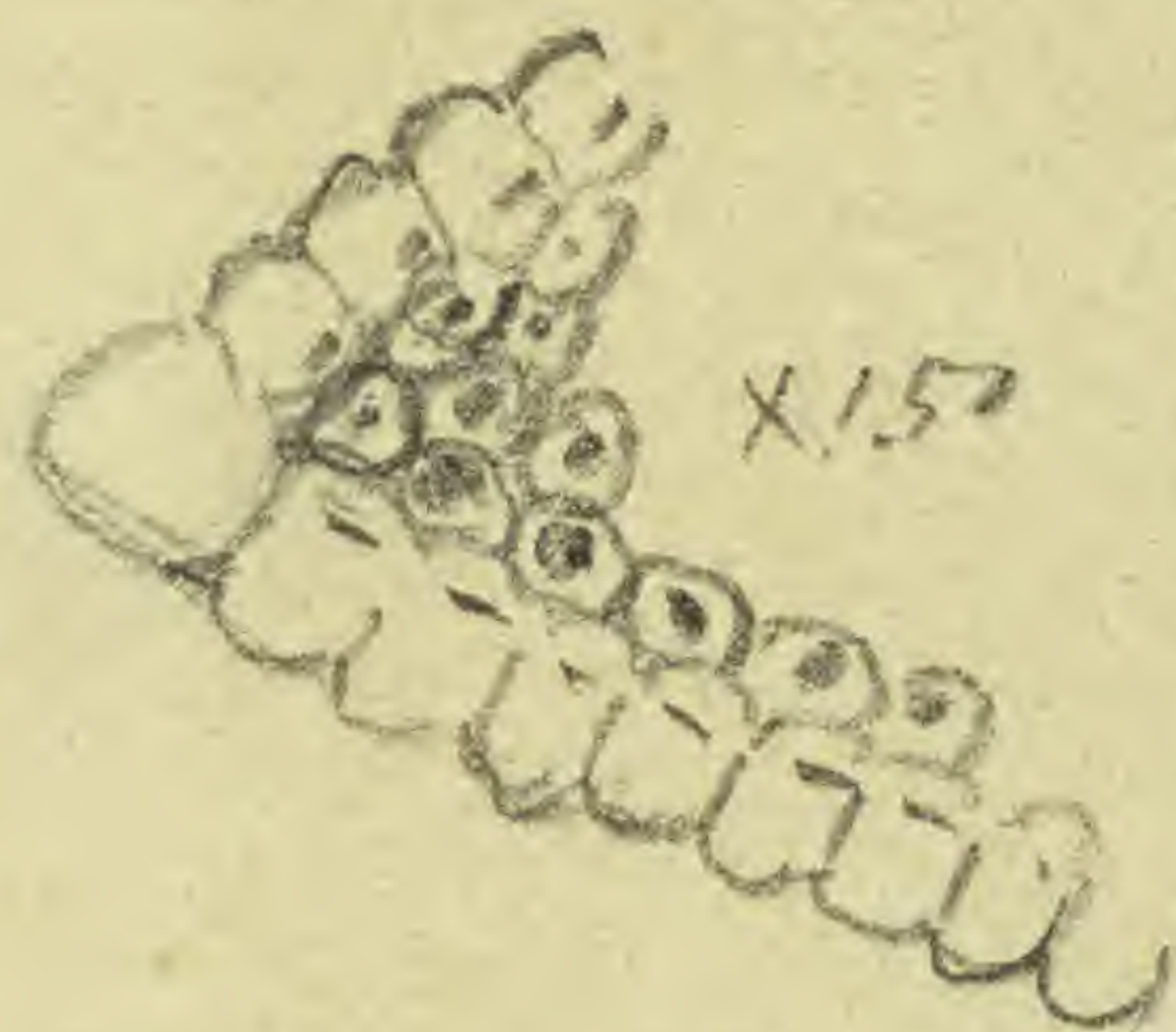
Bolander, Monterey 1865

x 30 ternate leaf



leaves 1.2 - 1.3 ^{mm} wide

binate leaf



x 60



interrupted layers of hypodermis cells
but no distinct scar.



Brewer, Monterey 1827



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11214

GEO. B. FRESE & CO'S,
No. 3005 Olive Street,
Near Garrison Av. ST. LOUIS.

Prescription Store,

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Prescribed by

DR. GEO. ENGELMANN,

N. W. Cor. Garrison Ave. & Locust St.,



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinus insignis

May 14 1878

Hot Throat, Antioquia

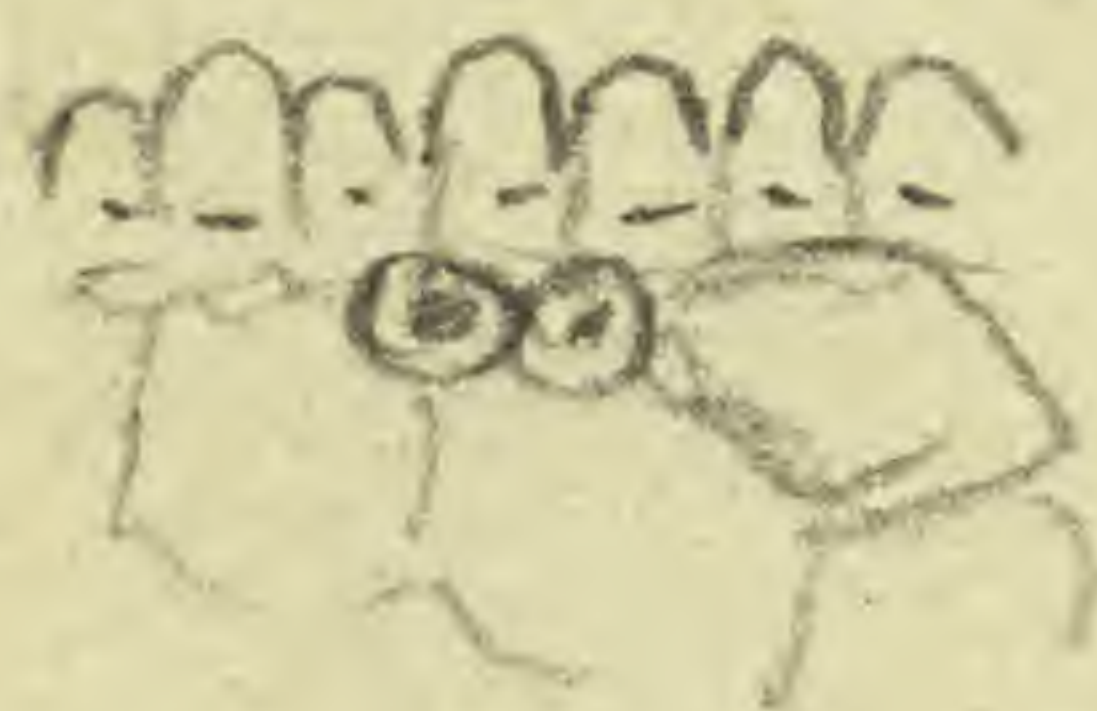
2,1 mm
wide

x 30



Quets not always distinct

on carina x 150



few hypoderm cells



on lower side

x 10



x 60



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11215

GEO. B. FRESE & CO'S,
No. 3005 Olive Street,
Near Garrison Av. ST. LOUIS.

Prescription Store,

MISSOURI BOTANICAL G
GEORGE ENGELMANN PAPERS

Prescribed by

DR. GEO. ENGELMANN,

N. W. Cor. Garrison Ave. & Locust St.,



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN

Pinnus insignis

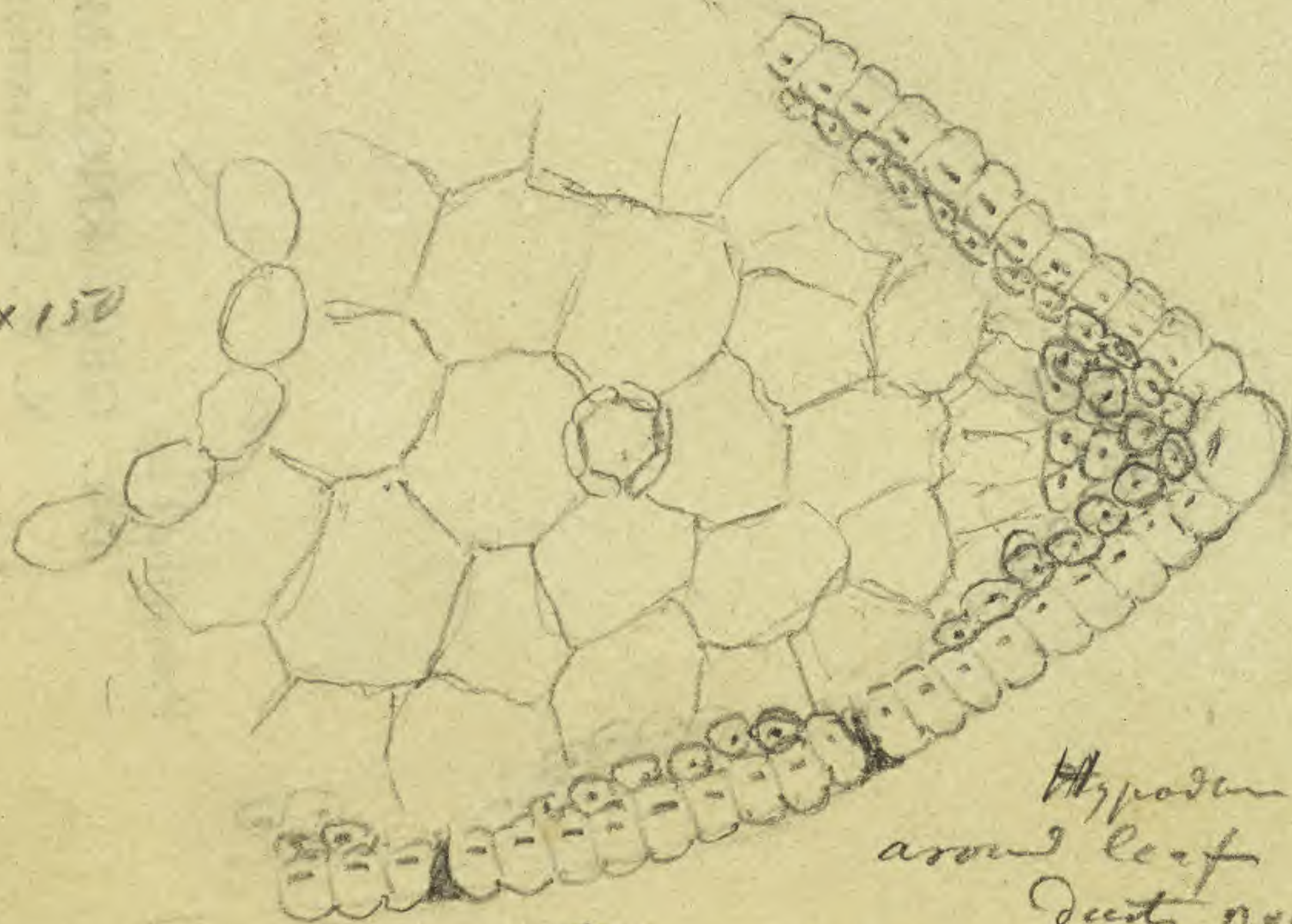
May 14 1878

fertile tree, Dropmore Park 1868

x 30

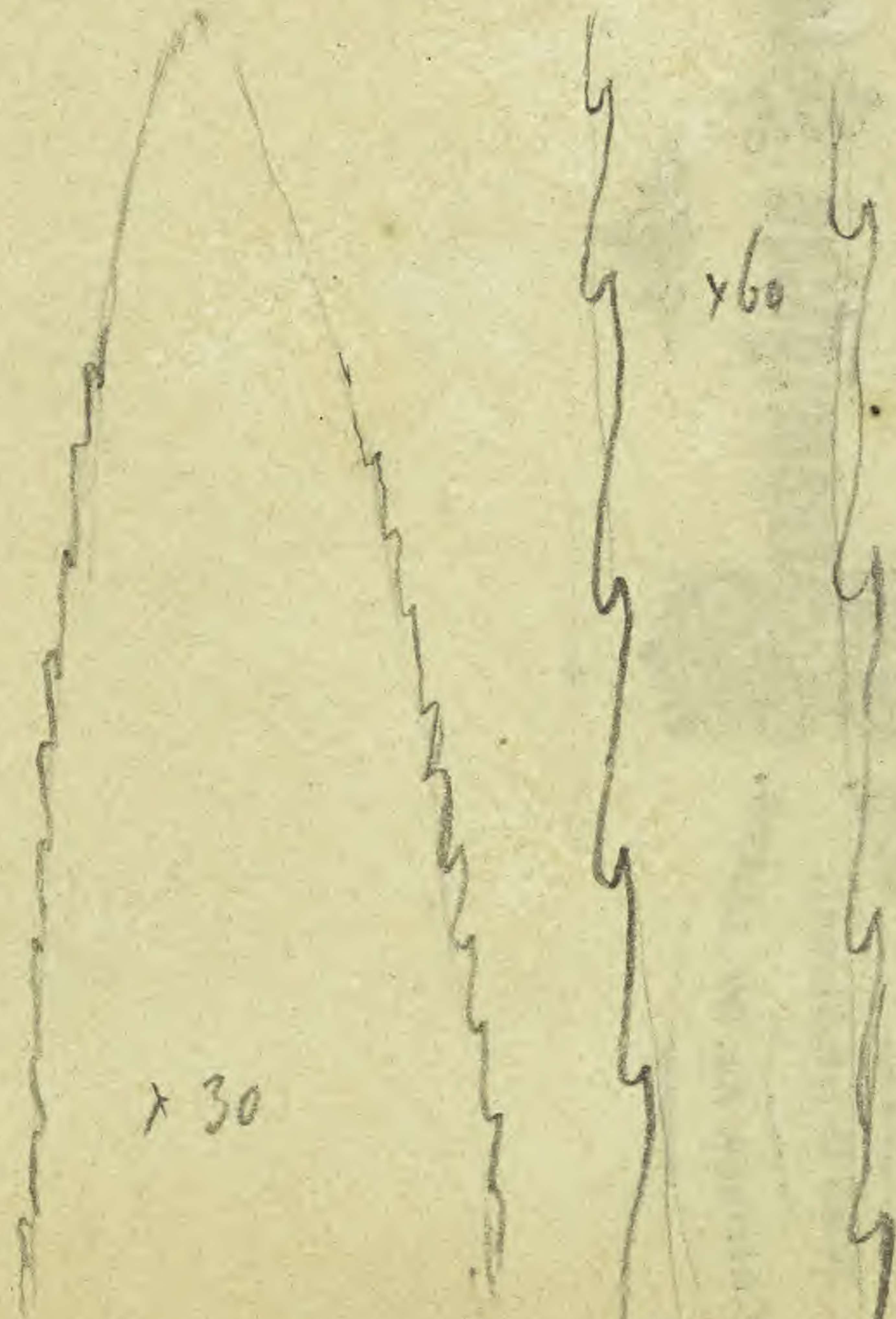


x 150



x 30

x 60



Hypoderm small but pretty much all
around leaf
Ducts none or paracymbria or dorsal!
bills seen in one leaf in other none or only one



0
cm

1

2

3

4

5

6

7

8

9

10

copyright reserved



MISSOURI
BOTANICAL
GARDEN

11216

GEO. B. FRESE & CO'S,
No. 3005 Olive Street,
Near Garrison Av. ST. LOUIS.



Prescription Store,

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Prescribed by

DR. GEO. ENGELMANN,

N. W. Cor. Garrison Ave. & Locust St.,



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI
BOTANICAL
GARDEN